

Amendment and Response to Final Office Action
U.S. Serial No.: 10/594,908
Filing Date: January 8, 2009
Attorney Docket No. BABT-001US

REMARKS

Claims 21-24, 27 and 31-40 are pending. Claims 34-40 were previously withdrawn from consideration as being directed to a non-elected invention. Claims 21-24, 27 and 31-33 are under examination.

Claims 21-24 are hereby canceled without prejudice. Claims 27 and 31-33 are hereby amended. New Claims 41-43 are hereby added. Support for the claim amendments can be found throughout the originally filed Specification and originally filed claims.

No new matter is introduced by the amendments.

After entry of the present Amendments, Claims 27, 31-33 and 41-43 will be pending for examination.

Response to Claim Rejections – 35 USC §112, first paragraph

The Office Action has maintained the previous rejection of Claims 21-24, 27, 31 and 33 under 35 U.S.C. §112, first paragraph, in particular, with regard to the limitations “single chain antibody fragment of a variable region”.

Without acquiescing to the Office Action and in an effort to advance the prosecution of the instant Application, Applicants have, in all claims pending for examination, replaced “single chain antibody fragment of a variable region” with “single chain variable fragment”.

Reconsideration and withdrawal of the instant rejection is respectfully requested.

Response to Claim Rejections – 35 USC §112, second paragraph

Amendment and Response to Final Office Action
U.S. Serial No.: 10/594,908
Filing Date: January 8, 2009
Attorney Docket No. BABT-001US

The Office Action has rejected Claims 21-24, 27, 31-33 under 35 U.S.C. §112, second paragraph, in particular, with regard to the limitations “single chain antibody fragment of a variable region”.

Without acquiescing to the Office Action and in an effort to advance the prosecution of the instant Application, Applicants have, in all claims pending for examination, replaced “single chain antibody fragment of a variable region” with “single chain variable fragment”.

Reconsideration and withdrawal of the instant rejection is respectfully requested.

Response to Claim Rejections – 35 USC §103(a)

The Office Action has maintained the previous rejection of Claims 21-24, 31 and 33 under 35 U.S.C. §103(a), as allegedly being unpatentable over Song, *et al.* **2003 Acta Biochimica Biophysica Sinica** 35:503-510 (herein referred to as the “*Song et al.*”) in view of Holliger, *et al.* **1999 Cancer Res.** 59:2909-2916 (herein referred to as the “*Holliger et al.*”).

Applicants note that Claims 27 and 32 are not included in the rejected claims under the instant rejection.

Without acquiescing to the Office Action and in an effort to advance the prosecution of the instant Application, Applicants have canceled Claims 21-24 and amended Claims 31-33. Applicants have amended Claim 27 to become an independent claim, having copied the limitations of previous pending and now canceled independent Claim 21. Claims 31-33 have been amended to depend from amended Claim 27. Newly added Claims 41-43, which correspond to previously pending and now canceled Claims 22-24, are dependent from amended Claim 27.

Amendment and Response to Final Office Action
U.S. Serial No.: 10/594,908
Filing Date: January 8, 2009
Attorney Docket No. BABT-001US

As each of the pending claims after amendment is dependent from Claim 27, not included in the instant rejection. Applicants because the instant rejection has been overcome by the claim amendments.

Reconsideration and withdrawal of the instant rejection is respectfully requested.

The Office Action has maintained the previous rejection of Claims 21-24, 27, 31-33 under 35 U.S.C. §103(a), as allegedly being unpatentable over *Song et al.*”) in view of Holliger, *et al.* in further view of Koga, *et al.* **1990** *Hybridoma* 9:43-56 (hereinafter “*Koga et al.*”) and US Patent No. 5,618,920 by Robinson *et al.*

The Office Action states that neither *Song et al.* nor *Holliger et al.* disclose an anti-CEA antigen binding fragment comprising SEQ ID NO:1. The Office Action states *Koga et al.* disclose *the anti-CEA monoclonal antibody* that was used to make the anti-CEA scFv. And *Robinson et al.* disclose the determination of nucleic acids encoding VH and VL of any known antibody and use of the VH and VL to produce FV.

The Office Action concludes that

“one of ordinary skill in the art would have been motivated to apply Robinson et al’s method determination of nucleic acids encoding VH and VL of an antibody to Koga et al’s anti-CEA antibody because Robinson et al states teach the determination of nucleic acids encoding VH and VL of any known antibody while Koga et al disclose that the antigen recognized by PSAM-1 is present on gastric adenocarcinomas. One of ordinary skill in the art would have been motivated to apply Robinson et al and Koga et al’s anti-CEA antibody’s VH and VL to Song et al and Holliger’s single chain tri-specific antibody comprising an anti-CES scFv because Koga et al disclose that the anti-CEA antibody localized to tumor tissue in vivo.”

Amendment and Response to Final Office Action
U.S. Serial No.: 10/594,908
Filing Date: January 8, 2009
Attorney Docket No. BABT-001US

Applicants submit that the above-quoted statements of the Office Action are speculative and are not based on sound scientific evidence and reasoning. The deficiencies of *Song et al.* are not cured by *Holliger et al.*, *Koga et al.* and *Robinson et al.*, which individually or collectively remain insufficient in providing enabling disclosure that teach or suggest Claim 27 as amended.

As discussed before, the tri-specific antibodies disclosed in *Song et al.* either form circular antibodies by intramolecular disulfide bonds and are thus not linear or form polymeric antibodies by intermolecular disulfide bonds that are not single-chain antibodies. *Holliger et al.* does not cure the deficiencies of *Song et al.* because it does not contain any suggestion to modify the preparative methods of antibodies according to *Song et al.* such that the single-chain tri-specific antibodies of *Song et al.* become linear. *Koga et al.* and *Robinson et al.* are similarly lacking in addressing this aspect of the claimed invention.

Furthermore, it is undeniable that neither *Song et al.* nor *Holliger et al.* disclose an anti-CEA antigen binding fragment comprising SEQ ID NO:1. While the Office Action quotes *Robinson et al.* as stating “The invention also produces consensus sequences and specific oligonucleotide sequences useful as probes for hybridization and priming cDNA synthesis of any hybridoma mRNA coding for variable regions of any desired specificity,” there is no guarantee that *Robinson et al.*’s would have definitely uncovered at the desired sequences. There was not sufficient direction and nor guidance in *Robinson et al.* and undue experimentation would have been needed to make the invention claimed in amended Claim 27 and dependent claims 31-33 and 41-43.

Reconsideration and withdrawal of the instant rejection is respectfully requested.

Amendment and Response to Final Office Action
U.S. Serial No.: 10/594,908
Filing Date: January 8, 2009
Attorney Docket No. BAPT-001US

CONCLUSION

Applicants respectfully request that the application be reconsidered and that the pending rejections be withdrawn. Applicants submit that all claims pending are now in proper condition for allowance, and request the issuance of a Notice of Allowance at the Examiner's earliest convenience.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is encouraged to call the undersigned at the phone number noted below.

Respectfully submitted,
MILSTEIN ZHANG & WU LLC

By:
/s/ (Reg. No. 44,372)

Yin Philip Zhang, Ph.D.
Attorney for Applicants

2000 Commonwealth Avenue, Suite 400
Newton, MA 02466

Tel: (617) 529-8369
Email: philip.zhang@mzwiplaw.com

Date: December 11, 2011